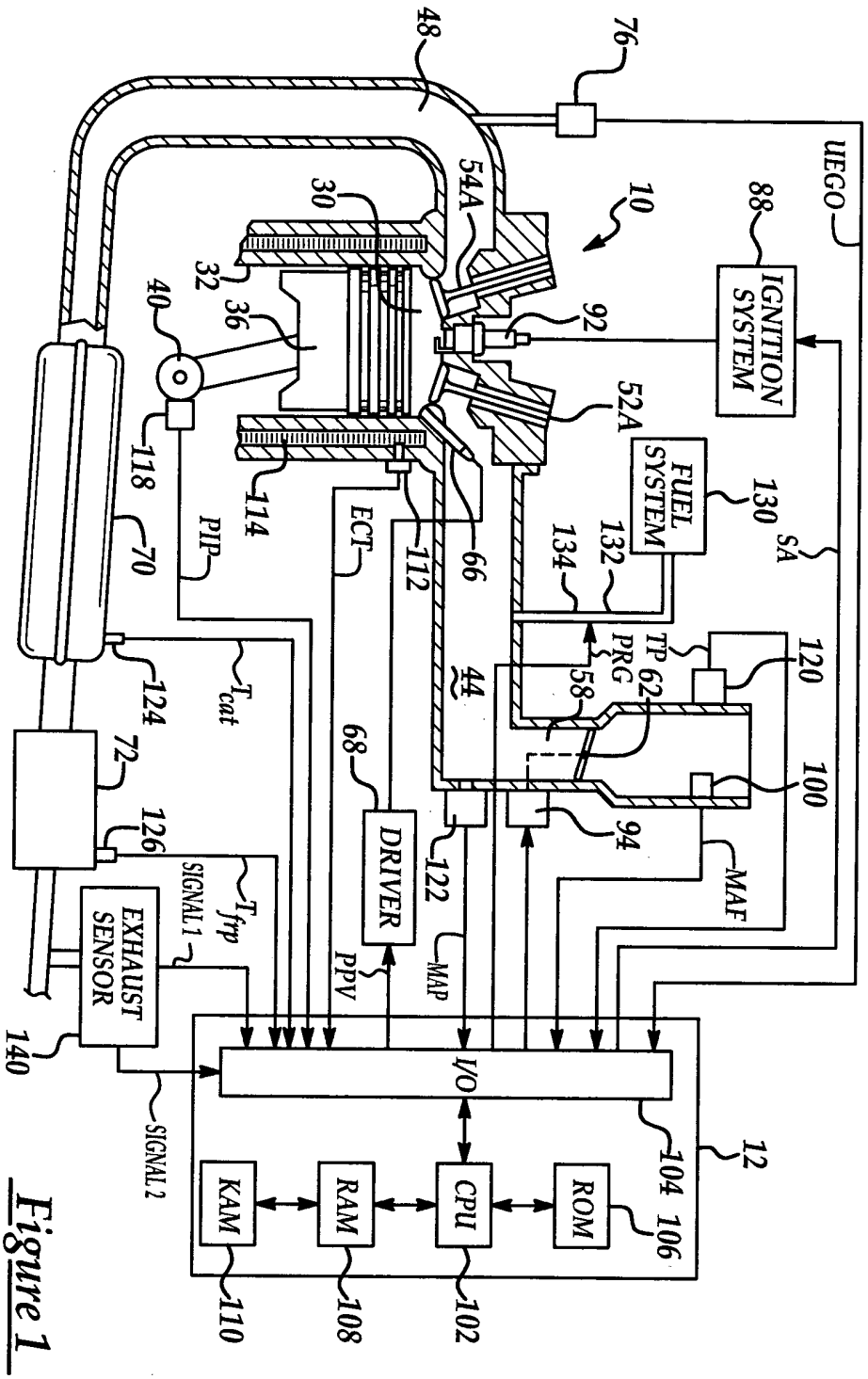
48
76
UEGO
88
IGNITION SYSTEM
10
54A
30
32
36
40
92
52A
FUEL SYSTEM
130
SA
132
134
118
114
112
66
ECT
PIP
70
TP
PRG
62
58
120
44
100
94
MAF
124
72
126
68
DRIVER
122
MAP
PPV
T_{cat}
T_{frp}
SIGNAL 1
EXHAUST SENSOR
140
SIGNAL 2
I/O
12
104
106
ROM
CPU
RAM
KAM
102
108
110

Figure 1

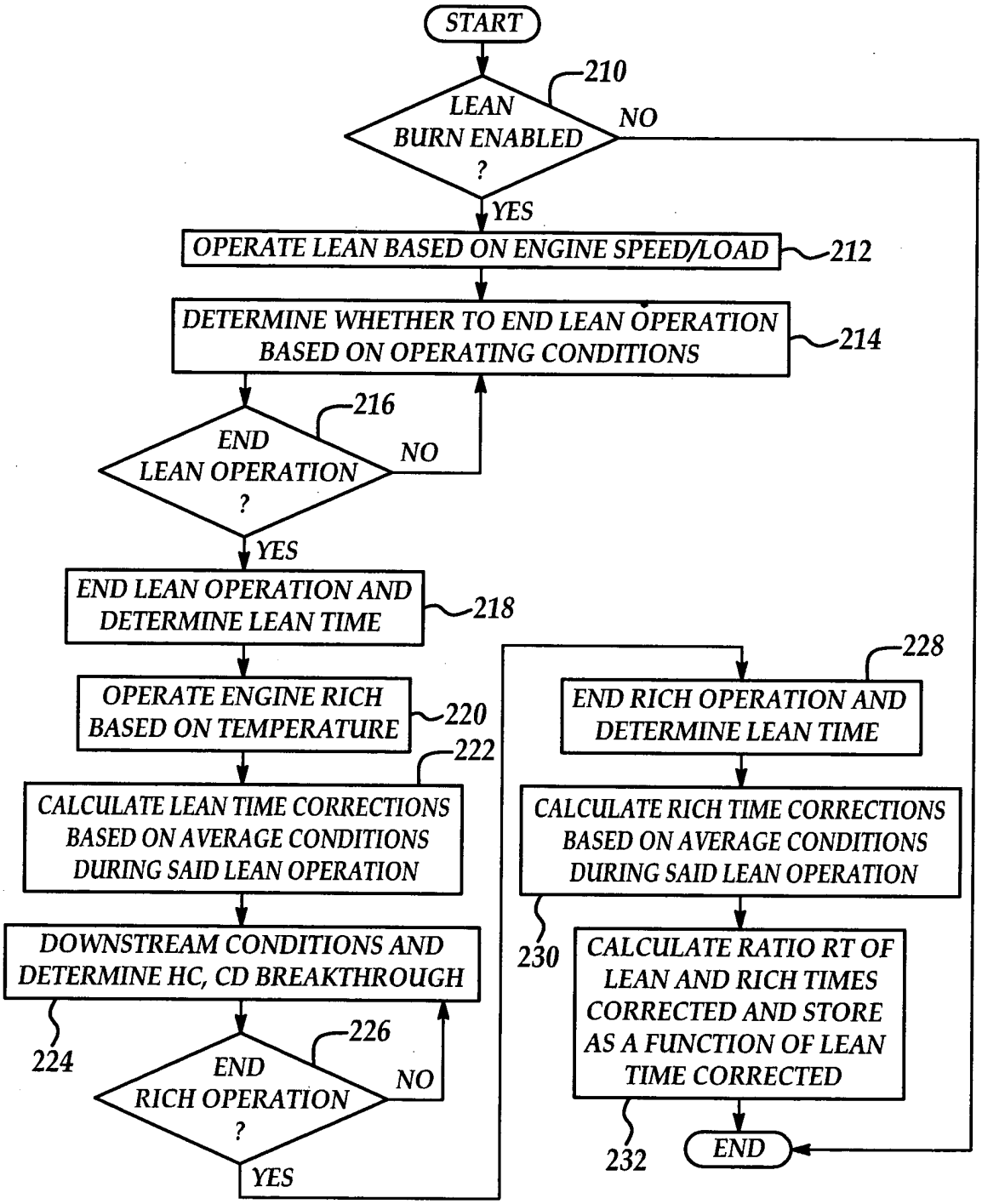
START
210
LEAN BURN ENABLED ?
NO
YES
OPERATE LEAN BASED ON ENGINE SPEED/LOAD
212
DETERMINE WHETHER TO END LEAN OPERATION BASED ON OPERATING CONDITIONS
214
216
END LEAN OPERATION ?
NO
YES
END LEAN OPERATION AND DETERMINE LEAN TIME
218
OPERATE ENGINE RICH BASED ON TEMPERATURE
220
222
CALCULATE LEAN TIME CORRECTIONS BASED ON AVERAGE CONDITIONS DURING SAID LEAN OPERATION
DOWNSTREAM CONDITIONS AND DETERMINE HC, CD BREAKTHROUGH
224
226
END RICH OPERATION ?
NO
YES
228
END RICH OPERATION AND DETERMINE LEAN TIME
CALCULATE RICH TIME CORRECTIONS BASED ON AVERAGE CONDITIONS DURING SAID LEAN OPERATION
230
CALCULATE RATIO RT OF LEAN AND RICH TIMES CORRECTED AND STORE AS A FUNCTION OF LEAN TIME CORRECTED
232
END

Figure 2

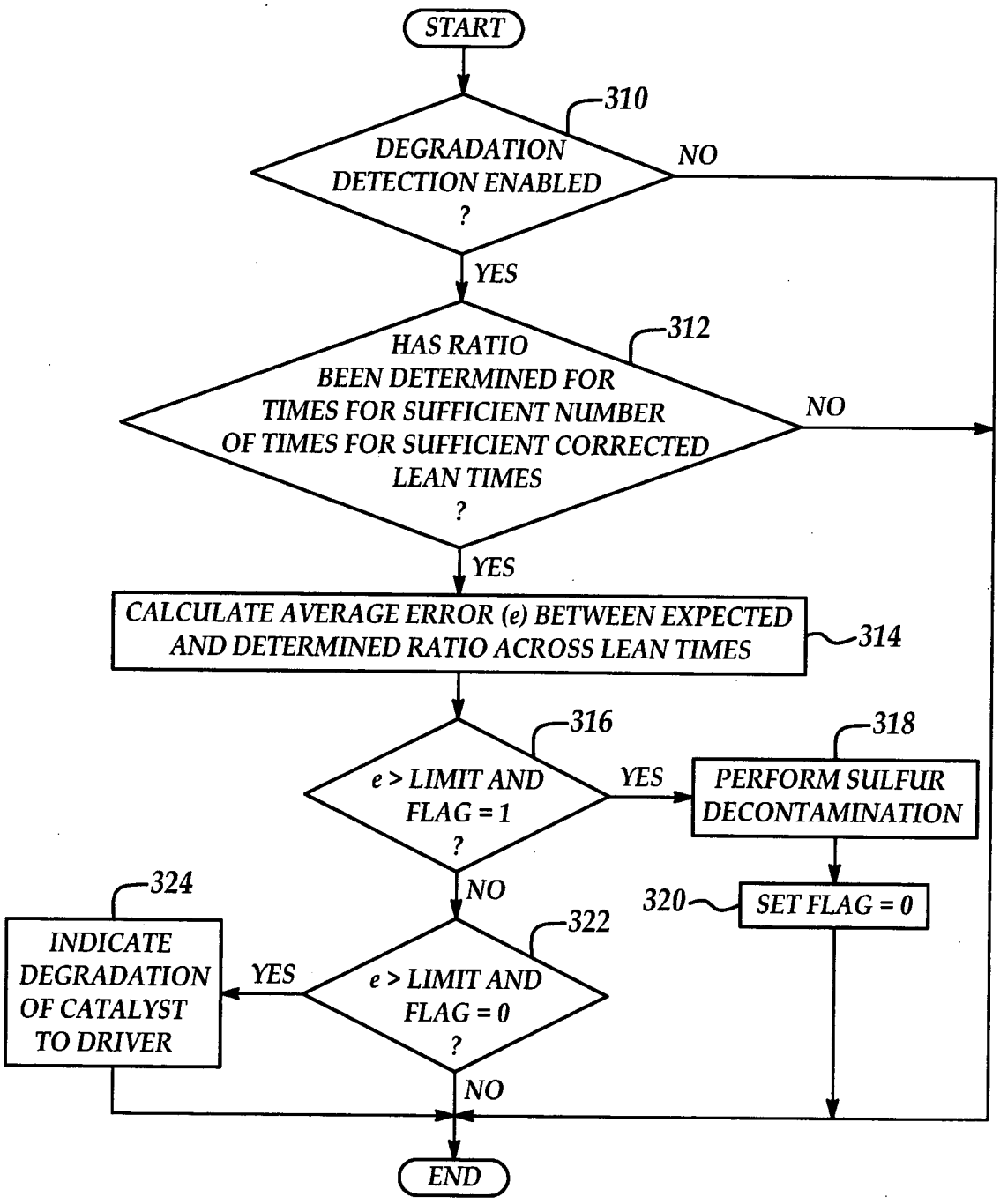
START
310
DEGRADATION DETECTION ENABLED ?
NO
YES
312
HAS RATIO BEEN DETERMINED FOR TIMES FOR SUFFICIENT NUMBER OF TIMES FOR SUFFICIENT CORRECTED LEAN TIMES ?
NO
YES
CALCULATE AVERAGE ERROR (e) BETWEEN EXPECTED AND DETERMINED RATIO ACROSS LEAN TIMES
314
316
e > LIMIT AND FLAG = 1 ?
YES
318
PERFORM SULFUR DECONTAMINATION
320
SET FLAG = 0
NO
322
e > LIMIT AND FLAG = 0 ?
YES
324
INDICATE DEGRADATION OF CATALYST TO DRIVER
NO
END

Figure 3

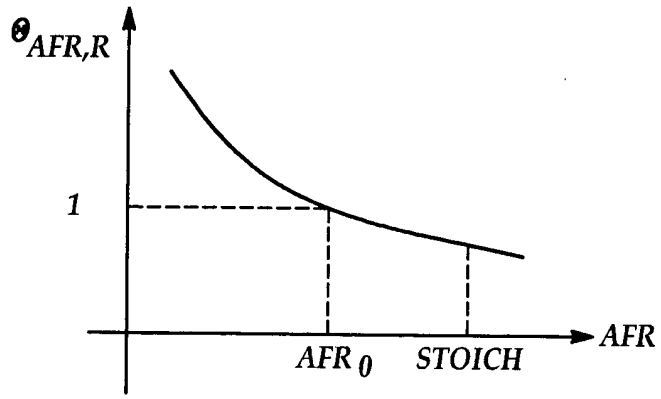

Figure 4A

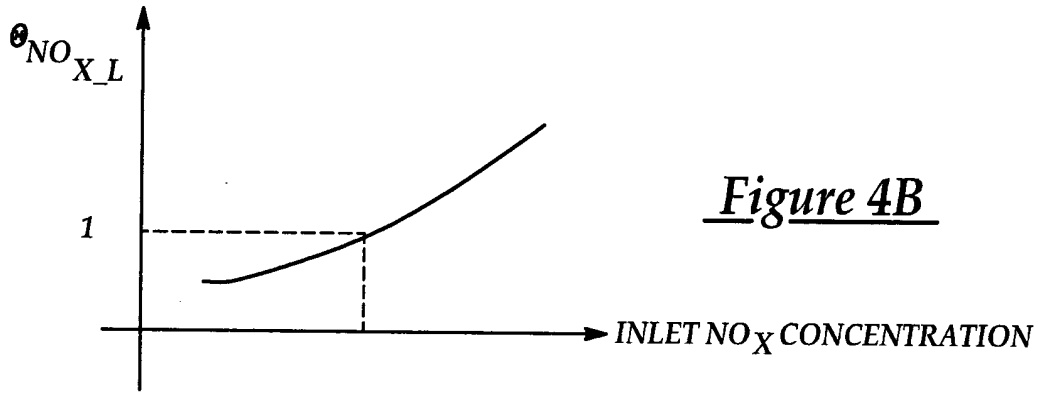

Figure 4B

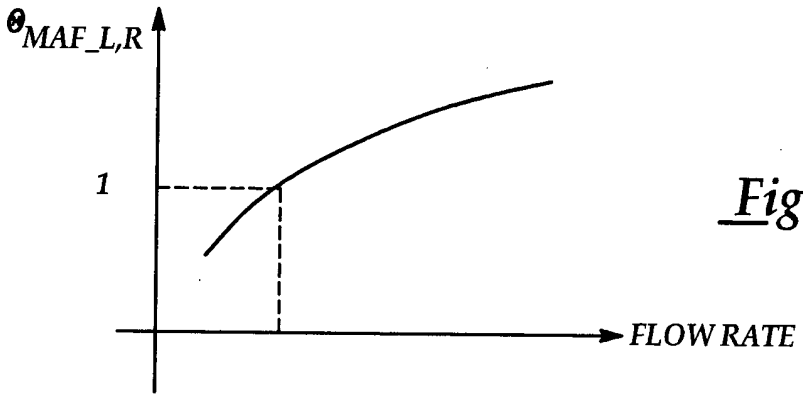

Figure 4C

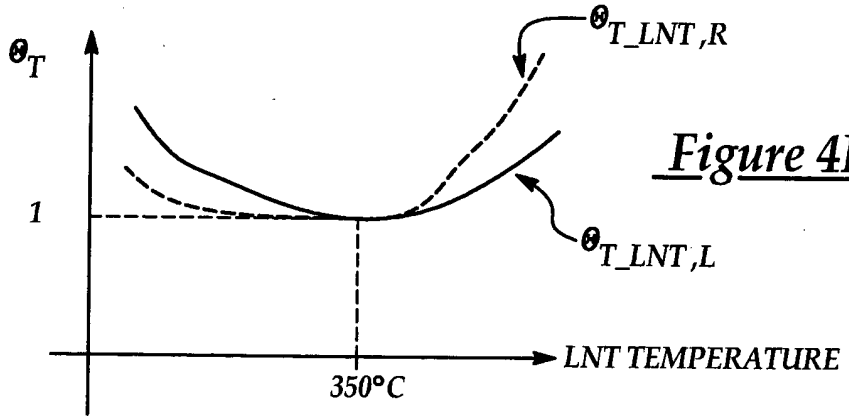

Figure 4D

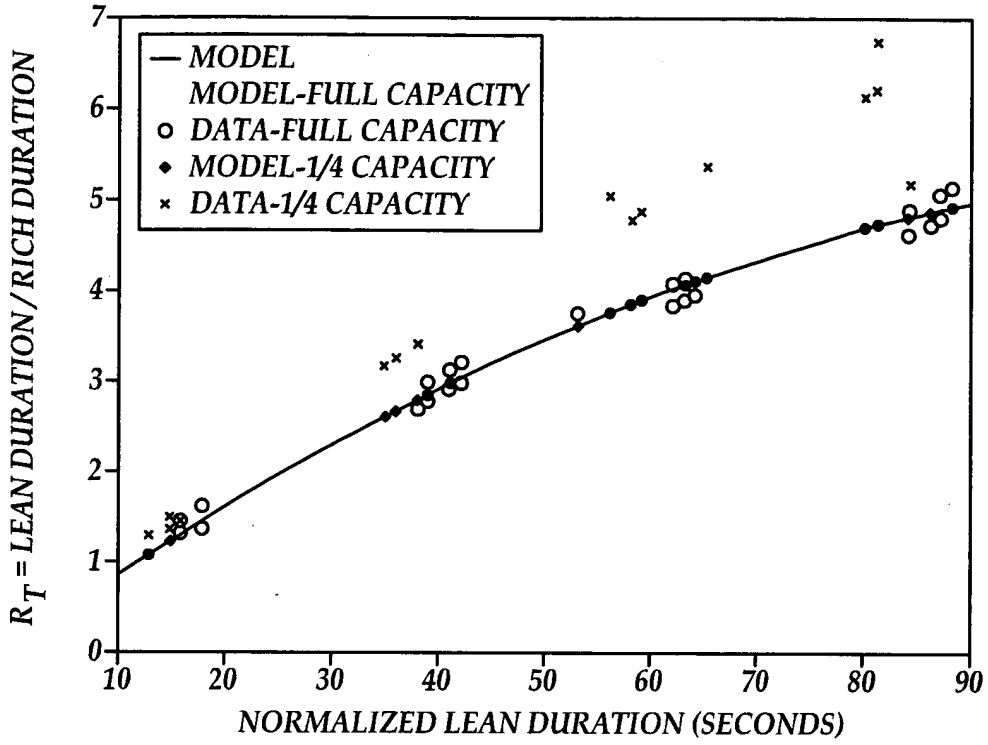

Figure 5

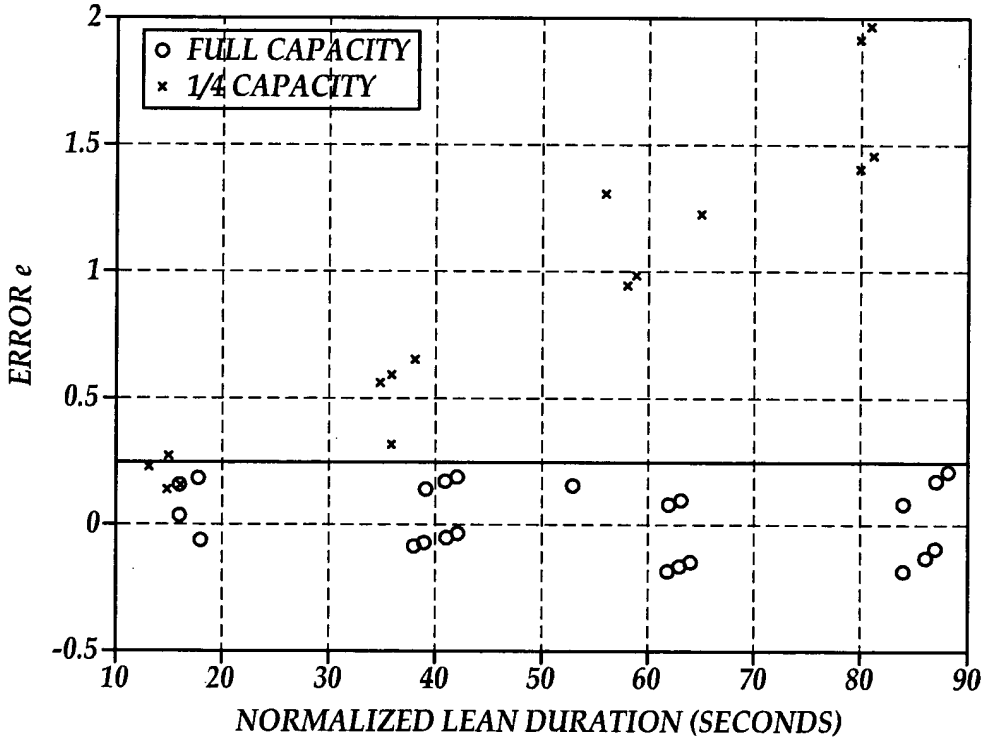

Figure 6